97 ~~44~~. (Amended) A *Brassicaceae* plant containing:

a) a full-length coding sequence from a delta-12 fatty acid desaturase gene having at least one mutation, said at least one delta-12 gene mutation in a region encoding a His-Xaa-Xaa-Xaa-His amino acid motif; and

b) a full-length coding sequence from a delta-15 fatty acid desaturase gene having at least one mutation, said at least one delta-15 gene mutation in a region encoding a His-Xaa-Xaa-Xaa-His amino acid motif;

wherein said delta-12 gene mutation and said delta-15 gene mutation render the products of said delta-12 desaturase gene and said delta-15 desaturase gene, respectively, non-functional.

~~64~~. (Amended) A method for producing a *Brassicaceae* plant line, comprising the steps of:

a) inducing mutagenesis in cells of a starting variety of a Brassicaceae or Helianthus species;

b) obtaining one or more progeny plants from said cells;

c) identifying at least one of said progeny plants that contains a delta-15 fatty acid desaturase gene having at least one mutation, said at least one mutation in a region encoding a His-Xaa-Xaa-Xaa-His amino acid motif, wherein said at least one mutation renders the product of said delta-15 desaturase gene non-functional; and

d) producing said plant line from said at least one progeny plant by self- or cross-pollination, said plant line having said delta-15 gene mutation.

~~67~~. (Amended) A method for identifying a mutation in a *Brassicaceae* plant, comprising:

a) providing a *Brassicaceae* plant having a decreased α-linolenic acid content as compared with a corresponding control *Brassicaceae* plant; and

b) identifying at least one mutation in a delta-15 fatty acid desaturase gene of said plant, said at least one mutation in a region encoding a His-Xaa-Xaa-Xaa-His

amino acid motif, wherein said mutation renders the product of said delta-15 fatty acid desaturase gene non-functional.